Research Article

Diabetes Mellitus Type-II (DM-II) and disease conviction: An Exploration of the possible causes

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Abstract

Introduction: Disease conviction is one of the elements of illness behaviour which assesses a tendency to be convinced that a somatic pathology is present and along with it, a resistance to reassurance. According to the concept of temperament, it is established that the personality and activities of a person are determined by his inherent temperament in both healthy and diseased conditions. It is speculated that disease conviction in diabetes may also be affected by the patient's temperament.

Material and methods: The present study is a cross sectional, descriptive, hospital based study to assess Disease Conviction in 100 DM-II patients. Disease Conviction was assessed with the help of Illness Behaviour Questionnaire. Temperament was assessed with Temperament Assessment Format. Known DM-II patients aged between 30-60 years were included in the study. Those having co-morbidity or severe acute complications of diabetes were excluded.

Results: 81.81% of the patients having a raised blood-sugar were found to be suffering from disease conviction. 75.2% of the patients taking injectable hypoglycemic drugs had the same perception. 63.52% having *balghami* temperament, and 73.33% patients having *Saudavi* temperament had a conviction that their illness was severe.

Conclusion: A significant percentage of Diabetic patients were found to be suffering from disease conviction. Severity of disease, route of administration of medication and *Mizaj* (temperament), all play a considerable role in determining the behaviour.

Keywords: *Su'e mizaj balghami*, *ziyabetus*, disease conviction, temperament, Diabetes Mellitus.

1. Introduction

1.1 Illness behaviour

Disease involves not only the body, but it also affects one's relationships, self-image and behaviour. The social aspects of the disease may be related to the patho-physiological changes that are occurring, but may be independent of them as well[1]. Abstract sociologists have researched the subject of illness behaviour for more than five decades. Recently the discussion has taken on new importance because of changes in the delivery of health care and the emergence of patients' rights and increased patient knowledge of medicine[2].

Normal illness behaviour is a term intended to convey that the behaviour is appropriate and adaptive. In the course of their work, clinicians inevitably develop their own norms for defining normal illness behaviour and based on clinical observation and sometimes, on their personal experience of illness. When illness behaviour departs in some way from the expected, the term "anomalous illness behaviour" may be used to describe it. It encompasses both "atypical" and "abnormal" illness behaviour[3]. Pilowsky (1969) has proposed that a number of psychiatric syndromes (such as hypochondriasis, conversion reactions, etc.) may be viewed as abnormal illness behaviour[4].

Disease conviction is one of the elements of illness behaviour which assesses a tendency to be convinced that a

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somatic pathology is present and along with it, a resistance to reassurance. A patient having abnormal disease conviction is hopelessly preoccupied with the symptoms of his disease, and refuses to accept that he is in need of psychological help also. In the Indian scenario, surprisingly, many of such patients demonstrate a strong belief that God will help them overcome these problems[4].

The cognitive, behavioural and emotional factors in maintaining a successful self-management act synergistically; and understanding these dynamics is essential in the design and practice of patient education and disease management[5]. Connectedness to social networks can increase the presence and efficacy of healthy lifestyles and the use of preventive health services[2].

1.2 Mizaj (Temperament) and Diabetes Mellitus

The concept of *mizaj* (temperament) is a unique feature of *Tibb-e-Unani*, which on one hand, demonstrates its holistic approach towards diagnosis and treatment, and on the other hand, it gloriously distinguishes it from other systems of medicine. Therefore, it is one of the pillars of all aspects of *Tibb-e-Unani*, including diagnosis and management.

According to the concept of temperament, it is established that the personality and activities of a person are determined by his inherent temperament. This holds true for both healthy and diseased conditions. This predominance is reflected in the characteristic and personality of the individual. Similarly, in disease conditions, the abnormal temperament leads to certain personality and behavioural changes. These changes may vary in different illness conditions which depend on the *su'e mizaj* (abnormal temperament) of the patient[6].

Most of the Unani scholars believe that Diabetes is caused due to *su'e mizaj balghami* (abnormal phlegmatic temperament); which is a cold and moist humor. According to Ahmad Al-Hasan Jurjani, there are four main factors responsible for the causation of polyuria in *ziyabetus*: First, the weakness of the kidneys and their inability to retain the fluids in the body; second reason is the dilatation of the urethra, which is unable to stop the flow of urine; third, abnormal cold temperament of the liver or kidneys which may be caused by exposure to cold, e.g. in the form of cold drinking water; and fourth, it may be caused due to hot temperament of the kidneys which causes them to absorb large amounts of fluids from the kidneys[7].

Jamal-uddin Aqsarai (d. 1337 AD) has mentioned in Al-Aqsarai that Diabetes may be caused due to predominance of cold temperament. Prolonged Diabetes weakens the liver and causes general debility[8]. According to Burhanuddin Nafees (d. 1438 AD), the cold temperament in Diabetes weakens the *quwwat-e-masika* (power of retention) of the kidneys, which leads to increased urine output. This abnormally increased cold temperament may also be responsible for some of the behavioural changes in Diabetes.

Ibn Zuhr added a new dimension to the concept of *ziyabetus* (or *illat-e-barkar* as stated by him) that it may be caused due to abnormality of any of the four temperaments. When Diabetes is caused due to hot temperament with the presence of dryness, the symptoms are very severe. When it is caused due to cold temperament along with moisture, then polydipsia is not seen. If the Diabetes is due to cold temperament along with the presence of dryness, the disease is a fatal one, and it is a sign that the patient is nearing death[9].

1.3 Behavioural aspects of Diabetes

The importance of the behavioural aspects of any disease, including Diabetes is evident when we consider the fact that how illness is perceived is culturally constructed and has meaning, and these meanings have implications for successful Diabetes management. Disease management tends to be limited to efforts to correct abnormalities in the structure and/or function of organs and organ systems; pathological states whether or not they are culturally recognized[10].

In the same vein, it is being realized that many of us see the medical progress achieved with Diabetes over the past decade as obviating the role of behavioural science. But in reality, improvements in medical care, such as intensive insulin regimens, require more patient counseling, education, and support than simpler regimens.

Developments in biology, genetics, pharmacology, and medicine do not diminish but rather expand the importance of behavioural sciences[11]. There is also evidence that most patients underestimate the seriousness of their Diabetes and show limited engagement in the management of their disease. However, it is known that a lack of emotional distress does not necessarily indicate a successful adjustment but may instead reflect patients' tendency to avoid dealing with and managing their Diabetes until the first signs and symptoms appear, potentially undermining the effectiveness of early

detection and treatment[12]. As we develop more efficacious treatments, behavioral issues become increasingly important in determining how, to whom, and under what conditions and settings these treatments are optimally delivered[13].

2. Material and Methods

The present study is a cross sectional, descriptive, hospital based study undertaken to assess the "illness behaviour of DM-II patients. The study was completed in 2011. All diabetic patients who visited Medicine OPD during the study period were interviewed. Out of those, 100 patients of DM-II fulfilled the inclusion criteria, and were included in the study. Therefore, an all-inclusive sampling method was followed. The sample was divided into two equal groups (50 patients in each group); one consisting of those who were taking only oral hypoglycemic agents, and the other consisting of those taking injectable with or without oral hypoglycemic agents.

The data was collected by interview and observation method. Patients fulfilling the inclusion criteria were informed about the nature of the study and informed consent was taken. The Illness Behaviour Questionnaire[14] was translated into the local language (Hindi). The questions were read aloud by the researcher exactly as written in the questionnaire, and the answers were marked based on the patients' response. Temperament was assessed with Temperament Assessment Format developed by CCRUM, Ministry of Health and Family Welfare, Govt. of India. Known DM-II patient aged between 30-60 years of either sex who were willing to participate in the study were included. Patients unwilling to participate in the study or those with co-morbidity; patients having severe acute complications of Diabetes were excluded from the study.

3. Results

3.1 Demographic data

A total of 100 diabetic patients were recruited in the current study from the Medicine OPD of Majeedia Hospital, New Delhi. 61% of the patients were females and the rest were males. 21% of the patients belonged to the age-group of 30-39 years, 39% of the patients belonged to the age-group of 40-49 years and 40% of the patients were aged between 50-60 yearsMost of the patients were Hindu by religion (67 %). Most of the diabetics (79 %) are in 40 years and above. 90 % of the patients were married. Most of the patients (95.45 %) were educated up to or below matriculation. Maximum of these (45.45 %) were illiterate. Most of the patients (76 %) were semi-skilled workers, unskilled workers or unemployed. 81.81 % of the patients belonged to lower socioeconomic status (Middle/ Lower Middle or lower).

Table-i: Disease Conviction in the study sample at Medicine OPD of Majeedia Hospital, New Delhi.

Disease Conviction (Response to questions)	n=37		n=41		n=22	
	Group I (FBS: 90-130 mg/dl)		Group II (FBS: 131-200 mg/dl)		Group III (FBS: >201 mg/dl)	
	Yes	No	Yes	No	Yes	No
IBQ 2	20(54.05)	17(45.94)	25(60.97)	16(39.02)	14(63.63)	08(36.36)
IBQ 3	21(56.75)	16(43.24)	28(68.29)	13(31.70)	16(72.72)	0627.27)
IBQ 7	30(81.08)	07(18.91)	30(73.17)	11(26.82)	18(81.81)	04(18.18)
IBQ 10	25(67.56)	12(32.43)	25(60.97)	16(39.02)	15(68.18)	07(31.81)
IBQ 35	14(37.83)	23(62.16)	19(46.34)	22(53.65)	08(36.36)	14(63.63)
IBQ 41	21(56.75)	16(43.24)	24(58.53)	17(41.46)	15(68.18)	07(31.81)
$\bar{x}$	21.83(59.01)		25.17(61.38)		14.33(65.15)	

Table-ii: Disease Conviction in the study sample at Medicine OPD of Majeedia Hospital, New Delhi.

Disease Conviction (Response to questions)	n=50 ORAL				n=50 INJECTABLE			
	YES		NO		YES		NO	
	No.	%	No.	%	No.	%	No.	%
IBQ 2	27	54	23	46	32	64	18	36
IBQ 3	28	56	22	44	37	74	13	26
IBQ 7	43	76	07	14	35	70	15	30
IBQ 10	31	62	19	38	34	78	16	32
IBQ 35	21	42	29	58	20	40	30	60
IBQ 41	30	60	20	40	30	60	20	40
$\bar{x}$	36	72			37.6	75.2		

Table-iii: Disease Conviction in various temperaments.

Disease Conviction (Response to questions)	n=14 Damvi		n=53 Balghami		n=28 Safravi		n=5 Saudavi	
	Yes (%)	No (%)	Yes(%)	No (%)	Yes(%)	No (%)	Yes(%)	No (%)
IBQ 2	05 (35.71)	09 (64.28)	31 (58.49)	22 (41.51)	18 (64.28)	10 (35.71)	05 (100.0)	Nil
IBQ 3	07 (50.0)	07 (50.0)	37 (69.81)	16 (30.19)	16 (57.14)	12 (42.86)	05 (100.0)	Nil
IBQ 7	12 (85.71)	02 (14.28)	40 (75.47)	13 (24.53)	23 (82.14)	05 (17.86)	03 (60.0)	02 (40.0)
IBQ 10	09 (64.28)	05 (35.71)	37 (69.81)	16 (30.19)	15 (53.57)	13 (46.43)	04 (80.0)	01 (20.0)
IBQ 35	11 (78.57)	03 (21.43)	20 (37.73)	33 (62.26)	10 (35.71)	18 (64.28)	Nil	05 (100.0)
IBQ 41	06 (42.86)	08 (57.14)	37 (69.81)	16 (30.19)	12 (42.86)	16 (57.14)	05 (100.0)	Nil
$\bar{x}$	8.33 (59.52)		33.66 (63.52)		15.67 (55.95)		3.67 (73.33)	

The results may be summarized as follows

Disease conviction in patients having varying severity of Diabetes: 81.08% of the patients in group-I were found to be suffering from disease conviction. In group-II, 78.05% of the patients and in group-III, 81.81% of the patients were found to be suffering from disease conviction.

Disease conviction in patients having different temperaments: 59.52% of the patients having *Damvi* temperament, 63.52% having *Balghami* temperament, 55.95% having *Safravi* and 73.33% having *Saudavi* temperament had a conviction that their illness was severe and were reluctant to accept the physician's reassurance.

Disease conviction in patients on oral and injectable medication: 72% of the patients who were on oral

hypoglycemic agents had a perception that they are somehow responsible for their illness; and 75.2% of the patients from the injectable hypoglycemic group had the same perception.

4. Discussion

Chronic (non-communicable) diseases, principally cardiovascular diseases, cancer, chronic respiratory diseases and Diabetes, are leading causes of death and disability but are surprisingly neglected elements of the global-health agenda[15]. The International Diabetes Federation estimated that there were 285 billion adults with Diabetes in 2010; this number will continue to increase globally due to an ageing population, growth of population size, urbanization and high prevalence of obesity and sedentary lifestyle[16]. It was also estimated in the year 2008 that of all chronic non-communicable diseases, Diabetes was associated with the highest co-morbidities and complications[17]. A study by ICMR reported that presently India had the highest number of diabetic patients in the world (50.8 million) and this is projected to increase to 87 million by the year 2030. In addition, several features of urban life such as physical inactivity and unhealthy dietary practices, outdoor and indoor air pollution etc. also tend to increase the prevalence of Diabetes and cardiovascular disease in urban India[18].

In order to lay the groundwork for providing better health care for emerging health problems, in this study, we surveyed an urban population of Delhi regarding the prevalence of Disease Conviction in Diabetes Mellitus-II patients. The results are somewhat alarming. It was revealed that most of the patients had a conviction that they were suffering from a severe illness and were reluctant to accept any reassurance. About 82% of the patients having uncontrolled Diabetes were suffering from such conviction and surprisingly, almost an equal number of patients having well-controlled Diabetes expressed the same thoughts. Such negative beliefs may eventually have an effect on disease outcome and lead to stress which may further aggravate the problem. A higher prevalence of Disease conviction was also found in patients being treated on injectable drugs, regardless of their blood sugar level. The reason may be that very act of taking injections on a regular basis has consequences far beyond the actual pathology, as it often induces fear and hopelessness about the disease.

An important finding was the high prevalence of disease conviction in patients having *saudavi* and *balghami* temperament. Since most of the patients were found to have *balghami* temperament, which is in accordance with the cold humor theory of Unani Medicine; the results are extremely considerable, especially for clinicians. Since the Diabetics having *balghami* temperament demonstrated more signs of conviction, therefore, the management of such persons may have to be modified.

5. Conclusion

The central objectives in this research were (1) to assess the prevalence of disease conviction in diabetic patients, (2) to explore the possible reasons behind such behaviours, and (3) to explore the relation of abnormal behaviour with *mizaj* (temperament); with a view to improve the management of Diabetes. This study has demonstrated that a significant percentage of Diabetic patients have abnormal behaviour towards their disease, which may require more than usual intervention. Severity of disease, route of administration of medication and temperament of the patient, all play a considerable role in determining the behaviour, and consequently, the outcome of therapy. In a chronic disease such as Diabetes, these behavioral changes should categorically be taken into account to improve the overall quality of life of the patient.

In the dualistic view of human nature that guides much of our thinking about health, many see the medical progress achieved with Diabetes over the past decade as obviating the role of behavioural science. But in reality, improvements in medical care, such as intensive insulin regimens require more patient counseling, education, and support than simpler regimens. Developments in biology, genetics, pharmacology, and medicine do not diminish but rather expand the importance of behavioural sciences[11].

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